PSYCHOLOGICAL MEDICINE

Dementia among Elderly Melanau: A Community Survey of an Indigenous People in East Malaysia

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ABSTRACT

Background: **Prevalence of cognitive impairment and dementia among indigenous population were noted by previous studies to be exceptionally high at 66.7% and 32.2, respectively.**

Objectives: **This study aimed to determine the prevalence of dementia and identify the associated risk factors among elderly Melanau, an indigenous population in Sarawak.**

Methods: **All eligible and available elderly Melanau in 8 out of 32 villages in Mukah district were screened with ECAQ. Clinical interview by trained researcher was conducted on subjects with score 5 and below to ascertain the dementia diagnosis.**

Results: **A total of 344 subjects, which constituted about 28% of the elderly Melanau population (mean age 70.4 ± 6.7) were screened. The prevalence of cognitive impairment and dementia among elderly Melanau was 27.3% and 10.5%, respectively. Dementia was independently associated with age (OR 1.19), no education (OR 7.56) and multiple CVS illnesses (OR 3.76).**

Conclusion: **The prevalence of dementia among elderly Melanau is higher compared to in Malays. It is important to promote mental health and healthy lifestyle. Particular attention should be given to vascular risk factors to reduced risk of dementia.**

KEY WORD

dementia, indigenous, Melanau, ECAQ

INTRODUCTION

Malaysian population is gradually ageing similar to other nations in the world. The life expectancy of Malaysia has gradually risen over the years. It was 71.9 and 76.5 years in 2009 and projected to 72.4 and 77.0 years in 2012 for male and female, respectively[1]. Additionally, the life expectancy in Sarawak was higher than the national average at 74.5 years for males and 78.0 years for females in the year 2012. A progressively older population in Malaysia was further reflected by the steadily dropping rate of the average annual population growth and total fertility over the years. The overall disease burden rose as the population aged and the life expectancy increased. The older generation needed a good health and social care systems, which is still very much lacking in this country, especially in East Malaysia.

The prevalence of cognitive impairment in Malaysia varies widely. Prevalence of dementia from previous local studies were 31.6%[2], 36.5%[3] to 74.5%[4] among institutionalized elderly in nursing homes, 11.8%[5] to 22.4%[6] in the community and 15.3%[7,8] among attendees of health care. The prevalence of dementia determined by diagnostic clinical interview, however, was much lower. A community study of elderly aged above 65 in urban settlements found an estimated prevalence rate of dementia at 6%[9]. In another study, dementia was diagnosed in 2.5%[10] of elderly aged above 65 in an outpatient clinic. Hamid *et al.*,[11] conducted a population-based study of nationally representative sample of 2,980 community dwelling older people 60 years and over, the prevalence rate of dementia in Malaysia was estimated at 14.3% overall. Higher dementia prevalence were found in oldest of age (26.3%), women (19.7%), no formal education (24.1%), unmarried (19.4%), unemployed (31.3%), Bumiputera (32.2%) and very poor on self-rated health (33.3%). Of particular interest was disproportionately high prevalence rate of dementia in the indigenous ethnic group of Sabah and Sarawak (32.2%) compared to Malay (14.8%), Chinese (6.3%) and Indian (5.8%). This was in line with a previous study[6] in a rural area in Sepang, which found very high prevalence rate of elderly cognitive impairment among the aboriginal tribe (66.7%) compared to Malay (16.7%), Chinese (19.2%) and Indian (35.6%). It is high time to determine whether the prevalence of dementia in elderly indigenous population is truly much higher than other population.

Heavily burdened caregivers of patients with chronic illness spent a longer time providing for their physical needs[12]. Moreover, the caregivers of patient with chronic and highly dependent illness such as dementia were more prone to develop depression[13]. Hence, there is an urgent need for good quality geriatric unit and social care services to be made available for the public in Sarawak. Being a state as large as the Malaysia Peninsula, the geriatric services are needed in other districts such as Sri Aman, Sibu, Kapit, Bintulu and Miri as well and should not be confined to the capital city of Kuching. Only limited data were available on dementia among the indigenous ethnics in Sabah and Sarawak. Each of the ethnics has different population size, language, culture and socio-economic background. As such, local data is very much needed in order for the government to properly plan and develop the much needed health care and social welfare services for the local ageing population. The objective of this study, therefore, was to determine the prevalence of dementia and identify the associated risk factors among one of the indigenous ethnic group i.e., Melanau.

Received on May 19, 2014 and accepted on July 25, 2014

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METHODOLOGY

Study setting and subjects

Mukah is a coastal town situated at the mouth of Mukah River, in central region of Sarawak. The sub-district is divided into 8 administrative sectors with a total of 32 villages, 2,578 household and 32,429 inhabitants of which 2,507 aged 60 years and above. Melanau consisted 49% of Mukah or 5% of Sarawak population. They are further divided into 10-12 sub-groups, based on their dwelling areas and dialects. Melanau in Mukah conversed fluently in Melanau and Malay language. In the past, the Melanau were traditionally fishermen and sago planters. Nowadays, many had secured jobs in government services such as teacher, nurses and police personnel.

This cross-sectional study was approved by the USM Human Research Ethics Committee (HREC) and Malaysia Medical Research and Ethics Committee (MREC). Using stratified cluster sampling method, a total of 8 villages were chosen. Twenty five percent of all elderly (aged 60 and above) Melanau population in Mukah would number around 307 people. All available, consenting, Malay or English speaking elderly Melanau in the selected village on the day of the survey between July and September 2013 were enrolled. Subjects with mental retardation, severe sensory impairment or debilitating physical illness which might hinder proper interview and assessment, were excluded. The ethnicity and age of the subjects were determined as per documented in the identification card and/or birth certificate issued by the National Registry.

Instruments

The elderly cognitive assessment questionnaire (ECAQ)[14] was designed to assist screening for cognitive impairment among the elderly population in developing countries. This was due to lower literacy and cultural differences between those of developing countries as compared to those of the Western society. The ECAQ consists of 10 items grouped under 3 categories: memory (3 items), orientation (6 items) and memory recall (1 item). A correct response to each item assessed carries one mark. Maximum possible score is 10. A score of 5/6 is taken as the cut-off point, where a score of 5 or less indicates cognitive impairment with probable dementia. It has a sensitivity of 85.3%, specificity of 91.5% and a positive predictive value of 82.8%. A translated Malay version is available and had been used in a previous study[6]. Subjects suspected of probable dementia were further evaluated by clinical interview. The first author, trained in psychiatric interview and familiar with the local culture, conducted all the clinical interviews using the DSM-IV-TR criteria for the diagnosis of dementia.

Statistical Analysis

All the analyses were done using PASW Statistics version 20.0 for Windows. Descriptive statistics was used to evaluate socio-demographic data. The associations between socio-demographic data and diagnosis of dementia were initially analyzed using simple linear regression (SLR) before further test using multiple linear regressions (MLR) to measure the strength of the relationship as well as to provide a way of controlling for confounding factors.

RESULT

A total of 344 subjects, which constituted 28% of elderly Melanau population in Mukah, were screened with ECAQ. The mean age of subjects was 70.4 ± 6.7 years. Majority of the subjects were female (59.6%), married (67.7%) and, had no formal education (59.6%), unskilled employment (69.2%), family history of dementia (81.1%) and no history of smoking (78.8%). Ninety four (27.3%) cognitively impaired (ECAQ score 5 or less) subjects were further assessed with clinical interview. The diagnosis of dementia, depressive disorder and grief was made for 36, 7 and 2 subjects, respectively. The overall prevalence of dementia among elderly Melanau in Mukah, therefore, was 10.5%. The prevalence of dementia in age group 60-69, 70-79, 80-89 and above 90 showed an increasing trend at 1.1, 15.6, 34.2 and 50 percent, respectively. High prevalence of dementia was noted among subjects who had never married (22.0%), received no formal education

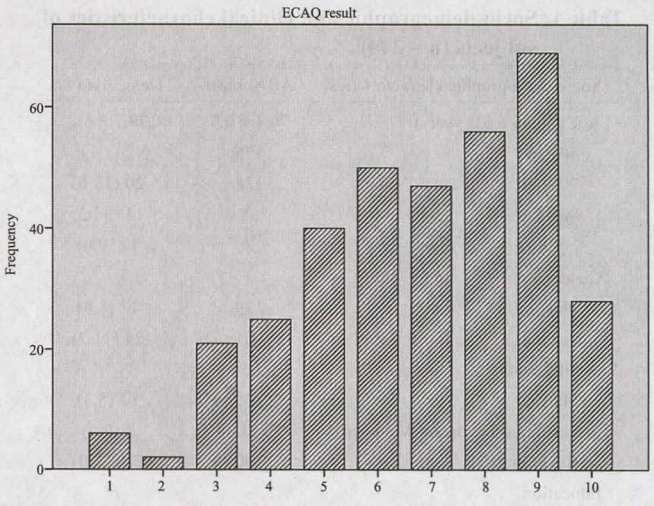

Figure 1. ECAQ scores of subjects (n = 344)

(16.6%), unskilled employment (12.6%), 3-5 types of cardiovascular (CVS) illnesses (20.4%), family history of dementia (44.6%) and history of smoking (41.1%). Socio-demographic factors age, marital status separated/divorced/widowed, no formal education, unskilled employment and presence of 1-5 CVS illnesses emerged as factors with P-value < 0.25 in SLR analysis. These factors were further subjected to MLR analysis. The final model showed older age, no formal education and presence of 1-5 CVS illnesses as significant factors associated with dementia.

DISCUSSION

The prevalence of cognitive impairment among elderly Melanau in Mukah was 27.3%. This was higher than prevalence in hospital-based studies[7,8] and lower compared to studies in nursing homes[2-4] or community-based[6]. Different screening instruments, cut-off points, and educational level of subjects may account for the different results. The 10.5% prevalence of dementia, however, was higher compared to prevalence of dementia among Malay in 2 previous studies at 6%[9] and 2.5%[10]. A systematic review and meta-analysis[15] found age-standardized prevalence of dementia for those aged ≥ 60 years is 5-7% in most world regions, with a prevalence of 6.4% in South East Asia.

A previous nationwide population-based study found the prevalence rate of dementia among indigenous group of Sarawak and Sabah was 32.2%[11]. A door-to-door survey was performed by trained researchers using a standardized questionnaire. The data was entered into a computer software programme that generated the diagnoses. Similar method of house-to-house survey was conducted in this study. In this study the first author, who was trained in clinical psychiatry and familiar with the Melanau culture and language, examined and confirmed the diagnosis of subjects. Although Malay language is commonly used in Sarawak, the indigenous people actually speak in Sarawakian dialect which can be hard to understand by people from West Malaysia.

After controlling for potential confounders, dementia was positively associated with 3 factors: age, no education and presence of multiple CVS illnesses. Age as a risk factor in dementia has been proven in many studies, locally and internationally. A meta-analysis[15] showed the prevalence of dementia in South East Asia almost double every 5 years, for example age 85-89 (18.7%) to 90 and above (35.4%). Similarly, the prevalence of dementia among elderly Melanau also increased with age and this association was statistically significant. For every 1 year, there is an increased risk of 19% (adjusted OR 1.19) to develop dementia. Uneducated subjects had 7 times increased risk of dementia. Increased risk of dementia among Melanau with multiple CVS illnesses is consistent with findings that vascular dementia is associated with CVS illnesses, such as stroke[16], LDL-cholesterol[17], hypercholesterolemia, diabetes mellitus[18] and hypertension[19].

Several other factors, such as gender, marital status and, employment, were not significantly associated with dementia. This is probably related the environment which provide good physical and psychological support to the elderly Melanau. It was commonly observed that four

Table 1. Socio-demographic and clinical characteristics of subjects (n = 344)

Socio-demographic characteristics	All Subject	Dementia (%)
Age (Mean ± SD years)	70.4 ± 6.7	79.1 ± 5.7
60 - 69	176	2 (1.1)
70 - 79	128	20 (15.6)
80 - 89	38	13 (34.2)
≥ 90	2	1 (50.0)
Gender		
Male	139	12 (8.6)
Female	205	24 (11.7)
Marital Status		
Married	223	12 (5.4)
Separated/Divorced/Widowed	21	2 (9.5)
Never married	100	22 (22.0)
Education		
Higher level	26	0 (0.0)
Lower level	113	2 (1.8)
None	205	34 (16.6)
Employment		
Skilled	46	2 (4.3)
Unskilled	238	30 (12.6)
None	60	4 (6.7)
CVS Illnesses*		
None	154	12 (7.8)
1 - 2	141	14 (9.9)
3 - 5	49	10 (20.4)
Family History		
Yes	65	29 (44.6)
No	279	7 (2.5)
Smoking		
Yes	73	30 (41.1)
No	271	6 (2.2)

*CVS = cardiovascular illnesses: hypertension, diabetes mellitus, ischaemic heart disease, hyperlipidaemia & stroke

Table 3. Final model of socio-demographic and clinical factors associated with presence of dementia

Variable	*b*	Multiple Logistic Regression Adjusted OR$^{\lambda}$ (95%CI)	P-value
Age	0.18	1.19 (1.12,1.27)	< 0.001
Education			
Yes	0	1	
No	2.02	7.56 (1.70,33.57)	0.008
CVS Illnesses*			
None	0	1	
3 - 5	1.32	3.76 (1.25,11.28)	0.018

b = Regression coefficient, OR = Odds ratio, CI = Confidence interval

*CVS = cardiovascular illnesses: hypertension, diabetes mellitus, ischaemic heart disease, hyperlipidaemia & stroke

λ Forward LR Multiple Logistic Regression model was applied

Multicollinearity and interaction term were checked and not found

Hosmer-Lemeshow test, (p=0.469) and area under the ROC curve (89.2%). The model reasonably fits well

generations lived in the same household, and several relatives being neighbours with each other. Many single people were staying together with their siblings and their families. Elderly Melanau of both genders, socialized in the evenings and weekends as a close-knit community. It was suggested that a good quality social networking and presence of leisure activity in late life is protective against dementia[20].

Table 2. Associated factors with dementia by simple logistic regression model

Variable	Regression coefficient (b)	Crude Odds Ratio (95% CI)	Wald statistic	P-value
Age (years)	0.19	1.21 (1.14,1.28)	39.74	<0.001
Gender				
Male	0	1		
Female	0.34	1.40 (0.68,2.91)	0.83	0.362
Marital status				
Married	0	1		
Separated/Divorced /Widowed	1.60	4.96 (2.34,10.50)	17.52	<0.001
Never Married	0.62	1.85 (0.39,8.89)	0.59	0.442
Education				
Yes	0	1		
No	2.61	13.62 (3.22,57.70)	12.57	<0.001
Employment				
Skilled	0	1		
Unskilled	1.16	3.17 (0.73,13.77)	2.38	0.123
None	0.45	1.57 (0.28,8.98)	0.26	0.611
CVS Illnesses*				
None	0	1		
1 - 2	0.27	1.30 (0.58,2.93)	0.42	0.519
3 - 5	1.11	3.03 (1.22,7.55)	5.70	0.017
Family History				
No	0	1		
Yes	0.04	1.04 (0.43,2.49)	0.01	0.929
Smoking				
No	0	1		
Yes	-0.33	0.72 (0.29,1.80)	0.50	0.482

*CVS = cardiovascular illnesses: hypertension, diabetes mellitus, ischaemic heart disease, hyperlipidaemia & stroke

CONCLUSION

The prevalence of cognitive impairment and dementia among elderly Melanau was 27.3% and 10.5%, respectively which was higher than in Malays 6%[9] or South East Asia 6.4%[15]. After controlling for potential confounders, dementia was positively associated with age (OR 1.19), no education (OR 7.56) and multiple CVS illnesses (OR 3.76). Other factors such as gender, marital status, employment, family history of dementia and history of smoking were not significantly associated with dementia. It is important to promote awareness about dementia, mental health and healthy lifestyle, and to actively screen and aggressively treat for vascular risk factors to reduced risk of dementia among the indigenous population in East Malaysia.

REFERENCES

1) Population Distribution and Basic Demographic Characteristics 2010. Department of Statistic Malaysia. http://www.statistics.gov.my/portal/download_Population/files/census2010/Taburan_Penduduk_dan_Ciri-ciri_Asas_Demografi.pdf
2) Khaw CR, Teo CW, Rashid AK. Cognitive impairment and depression among the residents of an elderly care home in Penang, Malaysia. *Internet J Psychiatry* 2010; 1(1).
3) Al-Jawad M, Rashid AK, Narayan KA. Prevalence of undetected cognitive impairment and depression in residents of an elderly care home. *Med J Malaysia* 2007; 62(5): 375-9.
4) Azlina WN, Hassan SA. Depression in institutionalized dementia patients and its influence on the quality of life. *Procedia - Social and Behavioural Sciences* 2013; 101: 181-188.
5) Rashid AK, Azizah AM, Rohana S. Cognitive impairment among the elderly Malays living in rural Malaysia. *Med J Malaysia* 2012; 67(2): 186-9.
6) Sherina MS, Rampal L, Mustaqim A. Cognitive impairment among the elderly in a rural community in Malaysia. *Med J Malaysia* 2004; 59(2): 252-7.
7) Razali R, Baharuddin A, Jaafar NRN, Sidi H, Rosli AH, Khoo BH, Lee TS, Bahari NHS, Elias NA. Factors associated with mild cognitive impairment among elderly patients attending medical clinics in Universiti Kebangsaan Malaysia Medical Centre. *Sains Malaysiana* 2012; 41(5): 641-647.
8) Arabi Z, Aziz NA, Aziz AFA, Razali R, Puteh SEW. Early Dementia Questionnaire (EDQ): a new screening instrument for early dementia in primary care practice. *BMC Family Practice* 2013; 14: 49.
9) Krishnaswamy S, Kadir K, Ali RA, Sidi H, Mathews S. Prevalence of dementia among Malaysia in an urban settlement in Malaysia. *Neurol J Southeast Asia* 1997; 2: 159-62.
10) Norlaily H, Azidah AK, Asrenee AR, Rohayah H, Juwita S. Proportion of dementia and its associated factors among elderly patients attending outpatient clinics of Universiti Sains Malaysia Hospital. *Med J Malaysia* 2009; 64(2): 140-5.
11) Hamid TA, Krishnaswamy S, Abdullah SS, Momtaz, YA. Sociodemographic risk factors and correlates of dementia in older Malaysians. *Dement Geriatr Cogn Disord* 2010; 30(6): 533-9.
12) Washio M, Yoshida H, Ura N, Togashi N, Sakauchi F, Arai Y, Mori M, Shimamoto K. Burden among family caregivers of patients on chronic hemodialysis in northern Japan. *Int Med J* 2012; 19(3): 221-223.
13) Hashimoto E, Washio M, Arai Y, Sasaki R, Mori M, Saito T. Depression among family caregivers of patients with dementia attending to psychiatric dispensary in Northern Japan. *Int Med J* 2013; 20(1): 9-12.
14) Kua EH, Ko SM. A questionnaire to screen for Cognitive Impairment among elderly people in developing countries. *Acta Psychiatr Scand* 1992; 85(2): 119-22.
15) Prince M, Bryce R, Albanese E, Wimo A, Ribeiro W, Ferri CP. The global prevalence of dementia: a systematic review and meta-analysis. *Alzheimers Dement* 2013; 9(1): 63-75.
16) Savva GM, Stephan BC. Alzheimer's Society Vascular Dementia Systematic Review Group. Epidemiological studies of the effect of stroke on incident dementia: a systematic review. *Stroke* 2010; 41(1): e41-6.
17) Blom K, Emmelot-Vonk MH, Koek HL. The influence of vascular risk factors on cognitive decline in patients with dementia: a systematic review. *Maturitas* 2013; 76(2): 113-7.
18) Helzner EP, Luchsinger JA, Scarmeas N, Cosentino S, Brickman AM, Glymour MM, Stern Y. Contribution of vascular risk factors to the progression in Alzheimer disease. *Arch Neurol* 2009; 66(3): 343-8.
19) de la Torre JC. Cardiovascular risk factors promote brain hypoperfusion leading to cognitive decline and dementia. *Cardiovasc Psychiatry Neurol* 2012; 2012: 367516.
20) Fratiglioni L, Paillard-Borg S, Winblad B. An active and socially integrated lifestyle in late life might protect against dementia. *Lancet Neurol* 2004; 3(6): 343-53.